

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2004/001964

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C25B-9/06 C25B-1/02 C25B-1/04 C25B-11/02 C25B-11/04 C25B-15/02  
According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C25B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic database(s) consulted during the international search (name of database(s) and, where practicable, search terms used)

CPD and Delphion

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
X	US 4,442,801 (Glynn et al.) (17-04-1984) *figure 2 and column 2, lines 28-62*	1 and 3
X	CA 1,062,660 (Westerlund) (18-09-1979)	1, 3 and 4
X	US 4,028,208 (Giacopelli) (07-06-1977) *figures 7 and 9*	1, 3 and 4
X	CA 1,215,938 (Kircher et al.) (30-12-1986)	1, 2 and 3

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

\* "A" Special categories of cited documents :  
document defining the general state of the art which is not considered to be of particular relevance  
"E" earlier application or patent but published on or after the international filing date  
"L" document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
"O" document referring to an oral disclosure, use, exhibition or other means  
"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art  
"&" document member of the same patent family

Date of the actual completion of the international search  
3 March 2005 (03-03-2005)

Date of mailing of the international search report  
16 March 2005 (16-03-2005)

Name and mailing address of the ISA/CA  
Canadian Intellectual Property Office  
Place du Portage I, C114 - 1st Floor, Box PCT  
50 Victoria Street  
Gatineau, Quebec K1A 0C9

Authorized officer  
Michelle Barriault (819) 934-2331

Facsimile No: 001(819)953-2476

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2004/001964

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No(s).
A	BROWN, C.J., et al., "Studies of three-dimensional electrodes in the FMO1-LC laboratory electrolyser", Journal of Applied Electrochemistry, Volume 24, Number 2, pages 95-106 *abstract*	
A	CA 1,123,378 (Larsson) (11-05-1982)	
A	US 6,068,741 (Lin) (30-05-2000)	
A	CA 2,368,508 (Balan et al.) (19-07-2002)	
A	CA 2,209,237 (Balan et al.) (27-12-1998)	
A	US 4,392,937 (Schmitt et al.) (12-07-1983)	
A	CA 1,092,546 (Spirig) (30-12-1980)	
A	CA 2,475,215 (Hyun) (14-08-2004)	
A	CA 1,060,382 (Rahn) (14-08-1979)	

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2004/001964

## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of the first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons :

7. ☐ Claim Nos. :  
because they relate to subject matter not required to be searched by this Authority, namely :
8. ☐ Claim Nos. :  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically :
9. ☐ Claims Nos. :  
because they are dependant claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows :

The claims fall into 8 general group which define 5 separate inventions:

- Group A: Claims 1-5 An electrode for use in a hydrolysis cell comprising a series of perforated electrically conducting wafers, vertically spaced from each other in a congruent stack and a connector.
- Group B: Claims 6-8 A hydrolysis cell comprising a casing comprising upper and lower chambers, wherein the lower part comprises a cathode and wherein the upper and lower chambers are separated by a gas and liquid-impervious divider having at least one opening therein retaining a gas-porous but liquid impervious filter.
- Group C: Claim 9 The use of the electrode of Group A in the hydrolysis cell of Group B.
- Group D: Claims 10-12 An electrode for use in a hydrolysis cell comprising an electrically conductive shaft and a plurality of spaced apart electrically conductive metal filter discs supported on said shaft.
- Group E: Claim 13 A hydrolysis cell comprising the electrode of Group D.
- Group F: Claims 14-20 A hydrolysis cell comprising a level sensor.
- Group G: Claim 21 A hydrolysis cell characterized by a ball valve.
- Group H: Claim 22 The system of Group G comprising one of the components of Groups A to F.

Groups A, B, D, F and G share no common inventive features.

10. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
11. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
12. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claim Nos. :
13. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim Nos. : 1 to 5

Remark on Protest

☐  
☐

The additional search fees were accompanied by the applicant's protest.  
No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.  
PCT/CA2004/001964

Patent Document Cited in Search Report	Publication Date	Patent Family Member(s)	Publication Date
US4442801	17-04-1984	US4442801 A	17-04-1984
CA1062660	18-09-1979	AU498184 B2 AU2060676 A CA1062660 A1 NZ182893 A SE415280 B SE7614631 A US4046665 A	15-02-1979 22-06-1978 18-09-1979 11-07-1979 22-09-1980 08-07-1977 06-09-1977
US4028208	07-06-1977	BE836625 A1 DE2553957 A1 ES443498 A1 FR2295139 A1 GB1510180 A IT1045190 B JP51086076 A US4028208 A	15-06-1976 24-06-1976 01-05-1977 16-07-1976 10-05-1978 10-05-1980 28-07-1976 07-06-1977
CA1215938	30-12-1986	AU8807582 A CA1215938 A1 DE3274994D D1 EP0076386 A2 JP58067880 A US4439297 A ZA8206029 A	14-04-1983 30-12-1986 12-02-1987 13-04-1983 22-04-1983 27-03-1984 27-07-1983
CA1123378	11-05-1982	CA1123378 A1 FR2115398 A5 GB1367802 A IT953199 B US3759815 A	11-05-1982 07-07-1972 25-09-1974 10-08-1973 18-09-1973
US6068741	30-05-2000	CA2247570 A1 GB2341615 A US6068741 A	15-03-2000 22-03-2000 30-05-2000
CA2368508	19-07-2002	CA2368508 A1 US6817320 B2	19-07-2002 16-11-2004
CA2209237	27-12-1998	CA2209237 A1 CA2241846 A1	27-12-1998 27-12-1998
US4392937	12-07-1983	US4392937 A	12-07-1983

(Continued...)

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.  
PCT/CA2004/001964

(Continuation...)

CA1092546	30-12-1980	AR217092 A1	29-02-1980
		AU506887 B2	24-01-1980
		AU3082677 A	31-05-1979
		BR7708155 A	26-09-1978
		CA1092546 A1	30-12-1980
		CH624149 A5	15-07-1981
		DE2754668 A1	29-06-1978
		ES464539 A1	01-09-1978
		FR2373615 A1	07-07-1978
		GB1519679 A	02-08-1978
		IN146997 A1	20-10-1979
		IT1089953 B	18-06-1985
		JP1337174C C	11-09-1986
		SE420846 B	02-11-1981
		SE7713931 A	10-06-1978
		US4113601 A	12-09-1978
CA2475215	14-08-2003	AU2002335555 A1	02-09-2003
		CA2475215 A1	14-08-2003
		EP1474547 A1	10-11-2004
		KR2003066007 A	09-08-2003
		US2005006228 A1	13-01-2005
		WO03066935 A1	14-08-2003
CA1060382	14-08-1979	BE835436 A1	10-05-1976
		CA1060382 A1	14-08-1979
		DE2550224 A1	13-05-1976
		FR2290509 A1	04-06-1976
		GB1525579 A	20-09-1978
		IT1048870 B	20-12-1980
		JP51070186 A	17-06-1976
		NL7513115 A	13-05-1976
		SE7512541 A	12-05-1976
		US3984304 A	05-10-1976
		US4036727 A	19-07-1977